MAJOR COMBAT OPERATIONS JOINT OPERATING CONCEPT (MCO JOC) 3

The global nature of U.S. security interests and security relationships, and the unpredictable and ambiguous security environment, including adaptive adversaries that employ conventional and unconventional capabilities using asymmetric means, demand a military with a global perspective of the battlespace and the ability to conduct simultaneous operations across the range of military operations in multiple regions of the world. Within this environment Army forces, and the joint teams to which they belong, are designed, organized, and trained for responsive and successful execution of JOCs, and rapid transition between the mission sets, tasks and conditions inherent in the JOCs. Each JOC is not a stand-alone operation or mission set; in fact there is a fundamental, yet complex, interrelationship among the four cornerstone JOCs [Major Combat Operations (MCO), Stability Operations (SO), Homeland Security (HLS), and Strategic Deterrence (SD)].

The HLS and SD JOCs are inextricably linked to their like-named strategic imperatives. By their very nature these two JOCs are, and will continue to be, continuous and ongoing regardless of major combat or stability operations, with a decidedly interagency flavor. They include continental United States (CONUS) and outside the continental United States (OCONUS) operations and actions, which play a key role in shaping the security environment for successful MCO and SO.

Stability Operations may be distinct operations, but they are also inherently part of MCOs, especially, but not exclusively, in pre- and postconflict phases. Forces must have the capabilities and modularity to rapidly transition between specific mission sets and tasks within each JOC, as well as the training and adaptability to be comfortable doing so. Major Combat Operations are the ultimate military coin of the realm for a global power. The ability to rapidly and successfully prosecute MCO anywhere has fundamental deterrent value that enhances stability in key regions and promotes U.S. homeland security.

It is essential to recognize that JOCs are usually implemented simultaneously, whether in multiple regions, in a single JOA, or both. Army and joint forces must master the transitions between and among JOCs and have the ability to execute multiple, simultaneous JOCs across multiple regions. This recognition implies a capacity to conduct operations globally, in conjunction with one another, and to rapidly and effectively transition between them (Figure 3-1).

Major Combat Operations are conducted as part of joint campaigns to protect and defend the United States' vital national interests. In the aggregate, MCO includes all actions associated with immediate preconflict shaping, force projection, campaign execution and conflict termination, including transitions to and from stability operations. Conducting MCO is arguably the most challenging of military operations and within the range of military operations that present the greatest danger and risk to the Joint Force. The ability to successfully prosecute MCO underscores the credibility of the Joint Force across the full spectrum of operations, fundamentally influencing the success of other operations including SD, HLS and SO. It follows that MCO is the primary driver for identifying and developing Joint and Army transformational capabilities. Capabilities required to successfully execute MCO are generally applicable to other JOCs; however, differing environments, conditions and objectives inher-

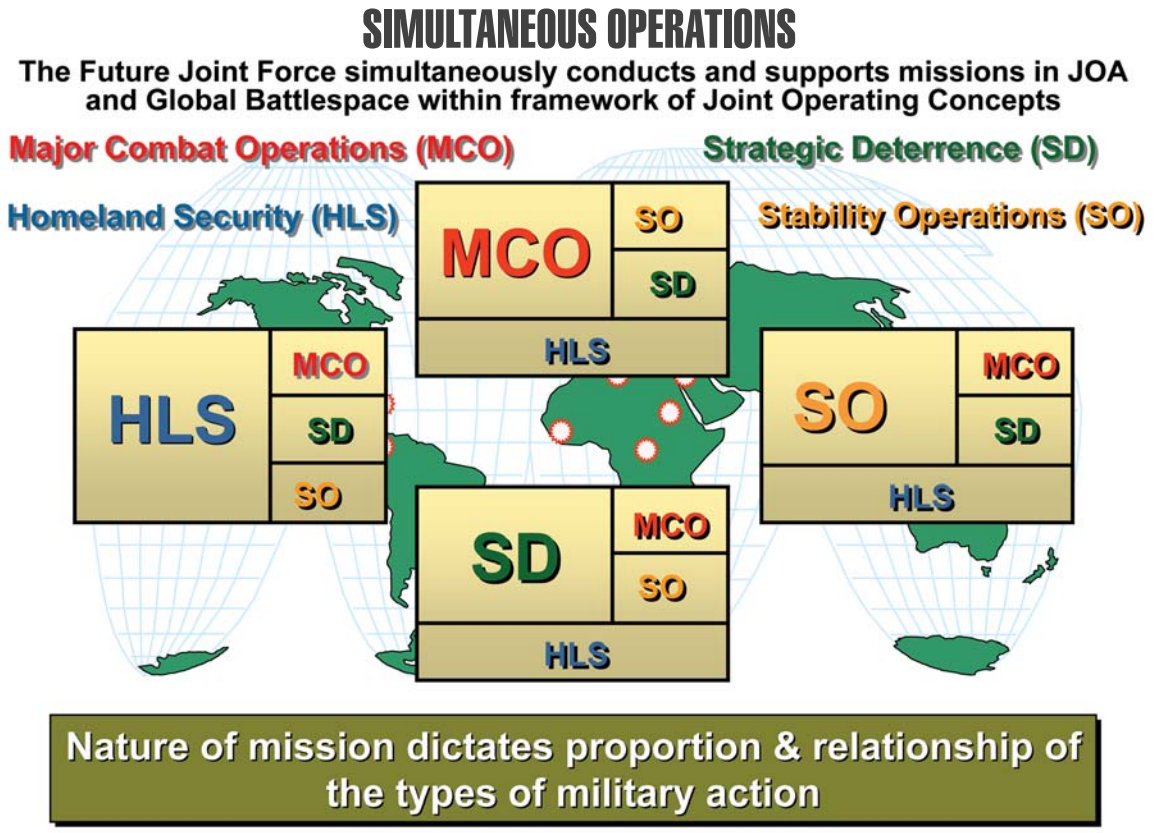

Figure 3-1. JOC Relationships to Simultaneous Operations

ent in other JOCs may require applying these capabilities in different ways and may require unique or additional capabilities.

JOC DESCRIPTION (Version 0.25, dated 12 September 2003)

The MCO JOC describes how joint forces will execute MCO in the next decade, and provides the operational context for the transformation of U.S. Armed Forces by linking strategic guidance to the integrated application of joint force capabilities. The MCO JOC describes an approach to warfighting and conflict resolution that exploits the capabilities of all U.S. instruments of national power to achieve full-spectrum dominance over an organized and capable adversary. The MCO referred to in this JOC are large-scale conflicts against an organized adversary, that possesses significant military capability and the will to employ that capability in direct opposition to, or in a manner threatening to, U.S. national security. The concept proposes a synergistic blending of other national capabilities—diplomatic, informational, and economic—with a credible, joint military force in order to create a situation with which the adversary can neither cope nor effectively respond.

The central objective of U.S. joint forces in the MCO JOC is to achieve victory in battles, campaigns, and wars through the fluid and coherent application of joint capabilities within an inherently joint, interagency and multinational environment. The JFC employs an effects-based approach and leverages a knowledge-enhanced force that operates with unity of purpose and action to achieve strategic and operational objectives. As friendly forces are brought to bear with unpredictability, speed, relentlessness, and seeming omnipresence—combined to maximize shock—they exert continuous pressure on the adversary and make the battlespace as a whole increasingly hostile, rendering continuing resistance impossible or futile.

Conceptual underpinnings of the MCO JOC include fluidity, coherence and unity of purpose. Fluidity, in this context, refers to the ability to readily adapt plans, shift forces, and redirect operations; the ability to seek out, create, and exploit opportunities and adversary vulnerabilities; and the ability to engage, or appear to engage, an adversary in every dimension, relentlessly applying pressure, irrespective of efforts to disengage or to seek advantage. It is analogous to the tendency of fluid to adapt to the shape of any vessel that contains it; to pour through any crack, hole, or gap; and to engulf any object that is immersed in it.

Conceptual Underpinnings of the MCO JOC

- Fluidity
- Coherence
- Unity of Purpose

Coherence, in this context, refers to ensuring that all available elements of the joint force are operating "in phase" that is, in a synchronized manner, with complementary purposes causing each element of the force to magnify the utility of the others synergistically, resulting in increased combat power.

Unity of purpose, in this context, refers to how the Joint Force executes the effects-based approach articulated in the MCO JOC, which links purpose to effects to tasks in order to facilitate the unity of action necessary to achieve desired outcomes at every level. Unity of action requires a clear and common understanding of purpose and of strategic and operational aims, as well as an understanding of the effects and tasks that will likely lead to attaining those aims.

The MCO JOC is predicated upon a globally integrated network of U.S. military forces, all relevant agencies, and coalition partners that facilitates collaboration and shared understanding to achieve unity of action.

Future friendly forces will be knowledge-enhanced, organized and designed to operate within a networked and collaborative environment to win the fight in the cognitive and information domains by achieving decision superiority. Decision superiority will be the result of consistently making better decisions more quickly than the adversary. An improved U.S. ability to sense, understand, decide, act, and adapt more soundly and more quickly than increasingly capable and creative adversaries is fundamental to the success of future combat operations.

JOINT CAPABILITIES

The MCO JOC describes MCO as conducted in campaigns comprised of sequential, parallel and simultaneous battles and engagements that are distributed throughout the battlespace. These distributed operations are conducted routinely in a noncontiguous, nonlinear battlespace. Operations will attempt to sustain an overwhelming operational tempo and to synchronize military actions with actions undertaken with other elements of national power. The Future Joint Force must have adaptive capacity and operational durability for sustained combat to defeat complex and adaptive adversaries. The current version (0.25) of the JOC identifies an initial set of desired capabilities for future MCOs that includes:

- Distributing the right power, in the right manner, at the right place and time throughout the entire battlespace
- Combining rapid, intensive, relentless maneuver and high volume strikes—kinetic and nonkinetic, lethal and nonlethal—with unprecedented speed to generate complementary and reinforcing effects
- Gaining and maintaining access to the battlespace by rapidly defeating an adversary's anti-access/area-denial efforts
- Radically reforming the joint deployment, employment, and sustainment continuum and mindset by further improving force projection and sustainment capabilities to create new force application and force protection options

- Comprehensively implementing an effects-based approach to the orchestration of all available resources to achieve the purpose of a particular operation and the decisive outcome for the MCO
- Leveraging comprehensive networked connectivity to achieve coherent action by the Joint Force
- An ability to constantly task organize the Joint Force to bring capabilities together in time and space to plan, rehearse, execute, and sustain decisive operations

In future joint campaigns involving MCOs, the JFC will seek to defeat the enemy and achieve decisive results as rapidly as possible. Joint operations will emphasize rapid strategic response by all Joint Force elements, leading immediately to the conduct of synchronized shaping and decisive operations throughout the depth and breadth of the JOA. The JFC views the conflict across time and space, through an end-to-end campaign analysis. The JFC must establish early and sustained control of the air, land, sea, space, and information domains, and focus on those key elements of the enemy systemology—critical capabilities, decisive points and centers of gravity—against which to apply decisive combat power. Overall, the JFC will seek to:

- Enter the conflict on his terms and immediately seize the initiative
- Build momentum rapidly through the most effective flow of forces that enables the integration of joint fires, interdiction, strike, maneuver, and information operations in all dimensions to shape the battlespace and set conditions for decisive operations
- Achieve decision early through rapid and sustained operations that overwhelm and destroy enemy forces, constrain his ability to respond, collapse his defensive integrity, and compel his defeat
- Possess campaign-capable qualities to ensure victory in extended conflict, when early decision is not achievable

Knowledge and situational understanding are essential for this type of joint campaign planning and execution. Knowledge building must begin with preconflict shaping and continue throughout the campaign to provide a comprehensive base of situational understanding for effective joint force employment. The joint force must have fully synchronized operational and sustainment battle rhythms based in part on an integrated common operational picture (COP), the ability to achieve and sustain increased force throughput via multiple, parallel force flows, and battle command for rapid and sustained operations, integrated from strategic to tactical levels.

Force Application

To immediately begin to neutralize the enemy's initial advantages of time and space, the JFC will require improved strategic responsiveness that embodies a deploy-equals-employ paradigm where future joint forces are expeditionary in character, arrive ready to fight, exploit en route knowledge building and continuous communications from home station through deployment, and close the gaps between early-entry and follow-on forces. Combinations of strategic and intra-theater lift must compensate for physical constraints such as austere environments and limited improved ports of debarkation (PODs), and they must simultaneously meet requirements for strategic power projection, operational employment, and continuous sustainment throughout the JOA to ensure operational agility. The JFC's intent will require multiple, simultaneous force flows across multiple entry points, including extending projection of combat-configured forces and sustainment into forward operating areas, to increase the throughput of combat configured forces and generate the desired combinations of strategic speed and power, thereby reducing predictability and enhancing operational surprise. Achieving the necessary increases in joint force throughput and strategic responsiveness will require improvements in lift capabilities, force design and structure (including a rebalanced force structure

that meets JFC force requirements and unit and mission configured loads), and the deployment process itself.

Exploiting advantages in strategic responsiveness, the JFC will conduct shaping actions to alter or set the conditions for campaign execution. These actions will include multiple flexible deterrent options that can be employed for preclusion, preemption and in conflict; early entry of conventional and unconventional forces for force protection, intelligence collection and situational awareness, security and battlefield preparation; early destruction of Integrated Air Defense Systems (IADS) and domination of air and sea approaches; establishment of a joint theater air and missile defense (JTAMD) umbrella capable of protecting continuous force projection, key assets within the JOA and cooperating regional partners; and assuring responsive communications and ISR networks (including space-based assets). Shaping actions must also include immediate initiation of information operations, closely integrated with diplomatic, political, economic, and overt military actions that deny an adversary a cognitive view of the battlespace, influence his decision making, and convince him that defeat is inevitable. Forcible entry of dismounted and mounted forces by air and sea, and immediate, sustained attacks against key enemy capabilities allow the JFC to rapidly seize the initiative, constrain the enemy's freedom of action, extend U.S. operational influence, and begin the process of paralysis and disintegration.

Shaping actions rapidly transition to decisive operations, which accelerate MCO termination by compelling the enemy to cease to resist, or destroy the enemy's capabilities to the extent he is no longer physically able to resist. Decisive operations are achieved by rapid, integrated and near-simultaneous application of joint forces throughout the JOA. Destruction, dislocation, and disintegration of the enemy's military integrity and cohesion and more rapid conclusion to tactical engagements, permits a high operational tempo and reduces a need for sustainment pauses. They are envisioned as continuous operations in all conditions and environments, with the ability to respond to opportunities, exposing the entire enemy force to direct action and providing no respite or opportunity to effectively regroup or reconstitute. Decisive operations require higher levels of joint force operational agility to act throughout the battlespace against those objectives and capabilities, including time-sensitive targets, most vital to the enemy's operational integrity—with particular emphasis on exploitation of the vertical dimension at tactical and operational depths with mounted forces, manned and unmanned sensors and networked joint fires. Key to decisive operations will be sharply improved joint suppression of enemy air defenses (J-SEAD) to enable and protect vertical exploitation, and fully integrated joint fires/effects from operational through tactical levels that provide redundancy, reduced latency, expanded engagement options, and effective combat assessment.

Battle Command

The current joint construct describes Joint Command and Control and BA as functional capabilities required by the Joint Force to execute future joint operations. The Army views battle command, which includes both C2 and BA, as the essential operational capability that enables the conduct of future joint operations and campaigns.

The transformational essence of battle command is the movement from estimate-based to knowledge-based planning and execution. As described in Chapter 2, battle command is the art and science of applying leadership and decision making to achieve mission success. Battle command requires not only the technical capabilities to collect, analyze, use and distribute accurate information and intelligence in a timely relevant manner, but also the decision aids and leader training and skills that translate information superiority into decision superiority and

effective, timely actions at tactical through operational levels.

At the macro level, joint battle command begins with the theater campaign construct. The combatant commander will continue to focus on providing strategic direction and resources to JTFs. Regional combatant commanders will remain responsible for establishing the overall theater structure to support JTF operations and, from that perspective, will direct strategic deployment, theater to national lines of communications, as well as theater sustainment, ISR, and air and missile defenses. Joint Task Forces will remain the organizational construct for conducting operations within a specified JOA. Several new concepts to improve the ease and responsiveness of JTF formation are being explored, most notably the SJFHQ and Service concepts for employing component headquarters as JTF HQs.

The conduct of simultaneous, high-tempo, noncontiguous operations distributed broadly throughout the JOA will place heavy demands on joint force leadership and C2. Commanding, controlling, and leading future joint forces will require more capable commanders, staffs, and support elements that fully understand the complexities of the emerging operating environment as well as the highly-integrated joint, multinational, and interagency characteristics of future operations. Critical to this revolutionary planning and execution paradigm change will be the creation of a network collaborative information environment (NCIE) that enables simultaneous, collaborative and iterative planning by multiple echelons within the Joint Force.

Information superiority (IS) is essential to exercising battle command required to execute the MCO concept of simultaneous, distributed operations described above and is achieved through a combination of technical and intellectual means. The struggle to maintain IS against a capable, adaptive adversary will be challenging and continuous. A constant advantage cannot be assumed. Advanced C2, communications, and ISR capabilities will form the backbone of battle command for the Joint Force. In particular, the Joint Force will rely on knowledge-based networks, vertically and horizontally integrated from strategic to tactical levels. Drawing information, updated in near real time, from a wide variety of automated and manual sources—onboard sensors, unmanned air and ground vehicles, traditional and new ISR means, space platforms, and an assortment of correlated databases—this knowledge network will focus on improving and accelerating the decision-action cycle and enhancing effective force employment. The network will provide the means for forces at all levels to achieve situational understanding (SU) and establish, maintain, and distribute a common (joint) operating picture tailored to force and situation. Concurrently, the command and control, communications and ISR networks will sharply enhance the lethality, survivability, agility, and versatility of the force, enabling more effective and timely application of joint force elements.

Information assurance is a key aspect of battle command. Joint command and control, communications and ISR systems and architectures must account for a wide array of threats through a combination of redundant and multi-layered systems that do not present a single point of failure within the space-to-mud, horizontally and vertically integrated network. Self-healing qualities that automatically adjust the network, reroute information flows, and identify/execute immediate action measures to counter an enemy's actions, and embedded defenses against computer-network attack, deception, electronic intrusion or monitoring, and electro-magnetic pulses are required.

Space support will extend from national to tactical levels, and the Joint Force will routinely exploit the overhead constellation of military and civilian space platforms for intelligence, focused surveillance, area reconnaissance, long haul communications, early warning, positioning, timing, navigation, missile defense, weather/terrain/en-

vironmental monitoring, and access to the GIG. The layered redundancy and improved capabilities provided through space will sharply improve development of SU at all levels and will prove particularly indispensable in immature theaters where existing communications infrastructure (e.g., absence of fiber optic cable networks) may be insufficient or unreliable.

A significant challenge to achieving the high levels of battlespace awareness required for future joint operations requires solving the multi-level security issues inherent in networking ISR and communications capabilities from strategic through tactical levels, including interagency and multinational partners.

Protection

Adversaries employing anti-access and area-denial strategies will present particularly complex threats to force protection, including tactical/theater ballistic missiles (TBMs), countermines (CM), sea mines, chemical, biological, radiological, nuclear, high yield explosives (CBRNE), and special operations forces (SOF). Many of these strategies will require theater-level constructs for force protection, such as JTAMD, early warning, and protection plans that extend beyond U.S. forces to include protection of multinational partners, interagency participants, civilian contractors, and local populations. Threats of weapons of mass effects (WME) use, or intentional acts to contaminate the environment and destroy critical infrastructure, present demands for unique and innovative operational, organizational, and technological capabilities to prevent and respond accordingly. Examples include expanded and enhanced human intelligence (HUMINT) capabilities; more rapidly deployable, sustainable and lethal missile defense capabilities; enhanced multispectral disease prophylaxis; and sharply increased capabilities to protect critical communications and ISR nodes and systems. Given this complex threat environment, the advantage provided through superior knowledge concerning force protection threats and vulnerabilities cannot be overemphasized. Similar to information superiority, maintaining required levels of force protection will be a continuous challenge against an adaptive, capable adversary.

Formations within a joint force must possess robust, inherent force protection and survivability capabilities fully integrated across the force to provide effective, multi-layered sets of active and passive capabilities. Examples include organic capabilities for identification, friend or foe (IFF), air and missile defense, early warning, cueing, surprise avoidance, active and passive protection systems; robotic systems to reduce exposure of manned elements; and decentralized, distributed operations by highly mobile maneuver elements that provide inherent force protection against enemy acquisition and engagement.

Significant force protection challenges include information assurance to protect joint networks; security and protection of discontinuous lines of communications that will often characterize distributed operations within a non-contiguous battlespace; improved capabilities for mine detection, identification, countermine, and stand-off neutralization to counter the prolific use of mines; identification, defense and protection against CBRNE threats; defense and protection against the multidimensional threats to vertical maneuver, during both flight and loading/off-loading phases; and fratricide prevention across the entire force, including interagency and multinational partners. Assuring force protection in the face of these challenges will require new technologies, as well as focused, limited-scope operations to set and maintain appropriate force protection conditions.

Focused Logistics

Sustainment operations in the Future Force must artfully blend strategic and operational sustainment and extend strategic sustainment flows beyond the shoreline to provide continuous sustainment throughout the JOA in order to enable

campaign execution without the necessity of extensive force buildup or operational pauses. Transformation to the network-centric warfare model of the information age requires a sustainment capability that shares the same attributes as combat units. This sustainment capability must be characterized by speed, adaptability, flexibility, shared situational awareness and understanding, a logistics COP, a robust communications infostructure, all of which provide for a distributed, adaptive system for rapid replanning, execution, and sustainment of military operations in complex, uncertain environments. The overarching goal is the continuous, precise, assured provisioning of deployed forces in any environment, ensuring the ability to generate, maintain, and employ combined arms combat power at every point in the joint campaign. Sustainment flows must be fully integrated within a national-to-theater-to-tactical continuum, from early entry through conflict termination, in order to support the deployment momentum needed to seize the initiative early, build and maintain operational momentum, and overwhelm the adversary. Focused logistics requires a global view that fully exploits and integrates DOD, joint, and Service assets and resources, external and internal to the JOA and theater.

Within this global framework, theater sustainment operations for MCO rest solidly on the fundamental concept of distribution-based logistics (DBL). The key principles underlying DBL include velocity over mass; centralized management with decentralized execution, multinodal/multimodal execution; maximum throughput; minimum essential stockpiling; seamless two-way flow of resources; in-transit visibility of stocks and supplies; unit- and mission-configured loads; real-time combat service support (CSS) situational understanding that enables anticipatory logistics; and time-definite delivery. Velocity over mass is the key element, one that substitutes the pipeline (inventories in motion) for large inventories stockpiled in-theater. Implementation of these principles enables the Future Force to employ split basing, optimize reachback operations, enhance force protection, and reduce logistical footprint in theater.

As with the operational paradigm described in the MCO concept, the sustainment time and distance paradigm will also change significantly in response to a number of operational factors, including force dispersion, operational tempo, noncontiguous operations, and expanding operational radii. Sustainment forces within the joint force must share the same quality of situational understanding as that provided to operational forces, ensuring that the logistical COP is fully harmonized and supportive of commander priorities. Theater sustaining operations will often be characterized by discontinuous, temporarily established lines of communication. Aerial sustainment will be required in a greater degree to support the air-ground mobility and agility needed to meet joint force requirements. More than ever before, operational and sustainment planning must be closely integrated, with battle and logistics rhythms inextricably linked. Tailorable joint theater logistic commands will provide an operational solution to these challenges. Combatant commanders retain the authority to direct Service component support responsibility to other Services in their AORs. This remains a viable means of increasing joint force efficiency and improving force effectiveness.

Experience indicates that the cumulative result of numerous major and minor initiatives will be required to have significant payoff in reducing strains on logistics systems. Among those initiatives are weight and cube reduction across all classes of supply (with respect to the Joint Force systems and platforms), simplified (common) packaging and materiel handling (with reduced requirements for internodal or intermodal repackaging or handling), increasing levels of commonality and interoperability, and more effective and efficient reliance on other-than-military support.

ARMY CAPABILITIES

The capabilities of Army forces to dominate the land domain in any MCO underscore its credibility and effectiveness for full-spectrum operations. The land domain military challenge inherent in the MCO JOC flows from the premise that ultimately, to achieve the effects required for military victory and set the conditions for achieving strategic and political objectives, the Joint Force must establish and sustain control of land, people and resources within the JOA. Long-range air and missile strikes may achieve significant effects and set conditions in the early stages of a campaign, but they cannot provide the sustained, dominant control required for decisive outcomes and conflict termination. While dominance in the air, sea and space domains within a JOA are generally achievable early in a campaign, establishing dominance in the land domain usually involves overcoming the tyranny of time and distance to project and sustain the requisite land power forces and capabilities, often to regions where U.S. forces lack significant presence or supporting infrastructure. The ability to achieve and sustain land dominance within a JOA is a unique capability that preempts enemy freedom of action and isolates adversary forces, denying the enemy sanctuary regardless of terrain and environmental conditions. Closely associated is the reality that the Army provides most of the security and sustainment capabilities for the Joint Force. Based on an assessment of the emerging MCO JOC, the following Army capabilities are required or implied for successful MCO execution.

Force Application

- Modular, combined arms combat forces rapidly deployable, in a ready-to-fight configuration, into a JOA or multiple JOAs at the times and locations required by the combatant commander and consistent with time frames specified in the Defense Strategy
- Increased Special Operations Forces and capabilities, including covert insertion, unconventional operations, psychological operations (PSYOPs), civil affairs, special reconnaissance and direct action, to conduct battlespace preparation in the manner and time frames required by the combatant commander
- Rebalanced forces, incorporating Force Stabilization and Unit Manning System and unit rotation constructs, to meet JFC requirements for more modular, readily accessible, full-spectrum, ready land forces for early-entry, forcible-entry and sustained operations
- Modular forces tailored for self-sufficiency and endurance and designed as part of a joint team, with the mobility to conduct mounted and dismounted maneuver in all conditions (all weather, all terrain, all environments) throughout the breadth and depth of the JOA, including tactical and operational vertical envelopment
- Forcible entry of mounted forces, employable across the range of environmental and terrain conditions, for rapid seizure of the initiative, with superior organic mobility to move rapidly beyond the initial lodgment, achieving operational effects from tactical action
- Sharply increased deployment and support infrastructure that compensates for physical constraints, such as austere environments and limited improved PODs, that reduce response times for early-entry forces and close gaps between early-entry and follow-on forces:
  - Reset and evolve Army pre-positioned stocks (APS) and establish the Army Regional Flotilla (ARF) to provide forward positioned unit- and mission-configured sets of critical capabilities that significantly reduce response timelines for early-entry forces
  - Develop expeditionary-basing capabilities that are fully integrated with joint sea-basing capabilities
- Enhanced offensive information operations capabilities to include electronic warfare,

computer network attack, military deception and space control

- As part of networked joint fires linking sensors to shooters, line-of-sight (LOS) and non-line-of-sight (NLOS), kinetic and nonkinetic lethality capabilities that deliver precise and desired effects at the ranges required for decisive operations by rapid, integrated and near-simultaneous application of joint forces throughout the JOA

Battle Command

- Battle command on-the-move capabilities that support and enable rapid, integrated and near-simultaneous operations throughout the JOA, including the land force component of the COP, real-time blue and gray force (commercial, civilian, noncombatant, etc.) tracking, en route/on-the-move mission planning and rehearsal capabilities, and long-range communications
- Knowledge-based collaborative planning and decision support tools integrated with joint planning systems/processes, including near-term good-enough capabilities and, for the longer-term, development of a single, joint interoperable battle command system of systems
- Army force HQ designed to operate as a JFLCC HQ, and when augmented with the appropriate SJFHQ and Joint Interagency Coordination Group (JIACG) elements, function as a JTF HQ
- Home Station Operations Centers to support rapid force projection and provide reachback, planning and analysis capabilities, while reducing footprint in the JOA
- Advanced sensors employed in enhanced netted sensor grids consisting of the right mix of multi-intelligence collection from space, air, surface, subsurface, and cyber to provide commanders persistent coverage of areas beyond the reach of organic sensors
- Greatly improved tasking, processing, posting, and using (TPPU) fusion across all domains ensuring information availability as soon as possible, providing the land aspect to the COP, and supporting knowledge-based collaborative planning and decentralized distributed (through time, space and purpose), noncontiguous operations through tactical levels
- Communications networks that provide long-range, continuous-connectivity, all-weather, all-terrain, self-regulating, and self-healing communications through operational and tactical levels
- Multilevel security procedures to enable shared information and battlespace understanding

Protection

- Enhanced Soldier protection that combines active and passive individual protection capabilities and networks the Soldier with his teammates and the combat formation for greatly improved situational understanding
- Enhanced platform protection that combines both active and passive measures and enhanced situational understanding through networks linking manned and unmanned platforms within the formation and within the joint team
- As part of fully integrated JTAMD capabilities, enhanced ground-based air and missile defense capabilities, including assured, accurate, real-time missile warning and distribution capabilities direct to affected forces and BCSs, with the mobility to support nonlinear, distributed, simultaneous operations throughout the JOA
- Enhanced defensive information operations capabilities to protect the force, information and information systems, to include OPSEC, computer network defense and space control

- Advanced CBRNE detection, protection and mitigation capabilities that are readily accessible to JFCs
- Enhanced intelligence coordination and exchange operations to better characterize and predict potential threat activities and actions
- Enhanced medical surveillance, including medical ISR, disease diagnosis, outbreak response, protection, mitigation, and recovery capabilities that interfaces with the medical C2 system as well as tactical C2 systems to allow such capabilities as real-time physiological status monitoring

Focused Logistics

- Networked logistics information systems, enabled by agile, assured communications, that allow logisticians to see requirements in near real time, and provide the decision support tools necessary for sense and respond logistics
- Increased theater support for the Joint Force to enable synchronized shaping and decisive operations throughout the depth and breadth of the JOA
- Modular, rebalanced forces for rapid and sustained logistics support, reducing footprint in the JOA through reachback
- Modular configuration of sustainment to facilitate efficient, flexible throughput to using units
- Tailorable and expandable force reception that supports continuous sustainment throughout the JOA to ensure operational agility, even in austere environments with limited improved PODs
- Integrated and responsive distribution enabled by in-transit and total asset visibility
- Infrastructure that can be rapidly configured to meet operational requirements
- Reduced sustainment demand through technology exploitation, new maintenance concepts based on improved reliability, diagnostics, and prognostics

JOINT INTERDEPENDENCIES

The synchronized employment of land, air, sea, space, and SOFs provides the joint commander with the widest range of strategic, operational, and tactical options. Although each Service contributes its own unique capabilities to the joint campaign, each dominating its respective domain, joint interdependence is critical to improved joint force effectiveness. Joint interdependence is achieved through the deliberate, mutual reliance of each Service on the capabilities of other Services or agencies to optimize the overall effectiveness of the joint force while minimizing its vulnerabilities. Only joint interdependencies that fully integrate dominant maneuver, precision engagement, focused logistics, and full-dimensional protection can enable the swift and decisive defeat of an enemy's forces throughout the JOA, resulting in rapid campaign conclusion. Several significant (but not all-inclusive) examples of interdependent capabilities required to dominate the enemy follow:

- Joint-integrated C4 and ISR capabilities and networks to gain information superiority, share a COP, determine the enemy's systemology, enhance joint-integrated information operations, and improve the ability of joint force and component commanders to synchronize operations based on better, more timely decisions at a pace that the enemy cannot match
  - Assured, networked joint and national ISR systems accessible by commanders at strategic through tactical levels that support mounted and dismounted maneuver, including force health protection, in all conditions throughout the breadth and depth of the JOA
  - Offensive information operations capabilities to deny an enemy's use of military, commercial, and civil space-based ISR as-

sets, and to degrade or deny enemy access to C2/decision support systems

  - Commonality of doctrine, terms, graphics, tactics, techniques, and procedures (TTPs), and visual tools and displays

- Strategic and operational air and sea lift to facilitate strategic responsiveness and operational agility. The most significant new capabilities required to improve Joint Force and Future Force strategic responsiveness and operational agility include shallow-draft, high-speed ships (SDHSS), super-short take-off and landing (SSTOL) aircraft, and advanced, heavy-lift vertical take-off and landing (HLVTOL) aircraft
- Networked joint fires that support mounted and dismounted maneuver in all conditions throughout the breadth and depth of the JOA
- Joint-integrated fire control system of systems for more effective and timely application of all-source fires and effects
- A comprehensive joint force protection umbrella that includes air and missile defense, provides security of air and sea ports of debarkation, and enables uninterrupted force flow against a diverse variety of anti-access threats
- Joint-integrated logistics, including supply, distribution and force health protection systems and processes that are responsive to combatant commander needs, eliminate unnecessary redundancies, increase efficiencies, and minimize the logistical footprint in theater